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(54) **PACKAGING MACHINE WITH FORMING TUBE**

VERPACKUNGSMASCHINE MIT FORMROHR

MACHINE D'EMBALLAGE COMPORTANT UN TUBE DE FACONNAGE

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EP 0 865 379 B1

Description

[0001] TECHNICAL FIELD: the present invention relates to the field of packaging machines generally included in the international classification B65 b.

[0002] STATE OF THE ART: there are several kinds of packaging machines with forming tube around which a ribbon of flexible material is wrapped, in order to shape a continuous sleeve. This sleeve is longitudinally sealed to obtain, with subsequent transversal sealings, filled and sealed packages; it is already known that the envelopes, if placed on a horizontal ground, can only lie flat.

[0003] In EP 0620156, that concerns a method to obtain stand-up pouches from a sleeve of flexible material wrapped around a vertical forming tube, and discloses a machine according to the preamble of claim 1, the figure 4 discloses a touching device 13 performed at one side of the sleeve. Nevertheless said touching device and the longitudinal sealing of the sleeve are not arranged opposite each other. Consequently said longitudinal sealing of the sleeve results in the central zone of the packet and his attractive is non agreeable. The market trend of the packaging field requires at present packages that are able to stand up steadily when placed on a horizontal ground, in order to have a better presentation in display or sale points. The problem to be solved is to obtain, with a machine for envelope production, packages that are able to stand up steadily on a horizontal ground.

[0004] The present invention is an optimal solution to the problem for the simplicity and the inexpensiveness of the realization and for the great reliability and versatility of employment in the packaging process with forming tube. This is done with the machine according to claim 1.

[0005] DESCRIPTION: the invention is now disclosed in detail referring to the figures of the attached drawings, as a not limitative example.

[0006] Figure 1 is an axonometric view that schematizes a packaging process with forming tube around which a ribbon of flexible material is wrapped, in order to shape a continuous sleeve. Said sleeve is longitudinally sealed to obtain, with subsequent transversal sealings, filled and sealed packages.

[0007] It can be noticed that the ribbon of flexible material comes out from a roll and the product to be packaged is fed by gravity through the forming tube.

[0008] Figure 2 shows with more details the performance of the transversal sealings and the action of the device that makes on the sleeve a gusset that constitutes the bottom structure of the resulting packages.

[0009] Figure 3 shows the advancement of the sleeve during the phase in which the transversal sealing device is open. It can be noticed that the shaping device can act also when the sleeve is moving forward.

[0010] Figure 4 shows in detail the operation of longitudinal sealing obtained by thermosealing together the two opposite facing ends of the internal side of the

sleeve.

[0011] Figure 5 shows the shaping device set on the side opposite to the one where the longitudinal sealing of the sleeve is carried out. It can be noticed that the forming tube is appropriately profiled in correspondence with the shaping device that forms the gusset.

[0012] Figure 6 shows the characteristic structure of the bottom that allows the package, when turned and placed on a horizontal plane, to stand-up steadily in a vertical position.

[0013] Figure 7 shows a device to ease the opening of the packages: it is clear that said device is set by the longitudinal sealing of the sleeve.

[0014] Figure 8 shows the application, by the longitudinal sealing of the sleeve, of a device for pouring and hermetically reclosing the package.

[0015] Figure 9 shows the application of a ribbon for the tear-off opening of the package.

[0016] Figure 10 shows the device that, in correspondence with the longitudinal sealing, can include shaped slots.

[0017] Figure 11 shows a package equipped with a zip fastener for reclosing.

[0018] Figure 12 shows the application, by the longitudinal sealings, of zip fasteners coming from a roll.

[0019] In the figures of the attached drawings each single detail is marked as follows:

1 is the forming tube through which the product to be packaged is fed.

2 is the ribbon of flexible material that is wrapped around the forming tube

3 is the longitudinal thermosealing made by compressing the two facing ends of the internal side of the sleeve against each other.

3' is the device that performs the longitudinal thermosealing.

4 is a hopper to put the product to be packaged in the forming tube.

5 is the device with drive belt to make the tubular sleeve move forward.

6 is the station where subsequent sealings, transversal to the sleeve, are performed in order to seal the package.

7 is the tubular sleeve

8 and 9 are two subsequent sealing transversal to the sleeve.

10 and 12 are the two ends of the flexible ribbon.

11 is the internal side of the sleeve

13 is the bottom of the package

14 is the gusset made on the sleeve

14' indicates schematically the shaping device that creates the gusset on the sleeve longitudinally sealed on the opposite side.

15 is the schematization of a device for the tear-off opening of the package.

16 is the pouring and reclosing device applied in the package inside the longitudinal sealing of the

sleeve.

17 is the ribbon for the tear-off opening of the package.

18 indicates a profile of the forming tube by the shaping device.

19 indicates the roll of the ribbon for the tear-off opening of the package. It can be noticed that the ribbon is applied continuously during the unrolling of the flexible material roll.

20 is a slot punched on the longitudinal sealing.

21 is a zip fastener, coming from a continuous roll, inserted in line during the longitudinal sealing.

[0020] The clearness of the figures enlightens the simplicity of the operation of the devices object of the present invention. It is here disclosed that said devices can be used also for machines without a vertical forming tube, but presenting an inclined or horizontal structure also with forced feeding.

[0021] The invention is obviously susceptible to several usage variations for what concerns the overall dimension, the structural proportioning and the technological choices.

[0022] All those packaging machines with forming tube, realized according to the characteristics hereinafter claimed will be therefore included in the context of the present industrial invention.

Claims

1. Packaging machine with a forming tube around which a ribbon of flexible material is wrapped, and with means for longitudinally sealing, gusseting and transversely sealing said ribbon in order to produce stand-up pouches, CHARACTERIZED BY THE FACT THAT the longitudinal sealing means (3,3') and the gusseting means (14,14') are arranged such that the longitudinal sealing operation and the gusseting operation are performed on two opposite lateral sides of the sleeve (7).
2. Packaging machine according to claim 1, CHARACTERIZED BY THE FACT THAT the longitudinal sealing of the sleeve is obtained by thermosealing together the two opposite ends of the internal side of the sleeve.
3. Packaging machine according to claim 1, CHARACTERIZED BY THE FACT THAT in line with the longitudinal sealing it is possible to obtain shaped slots and to apply devices for opening, pouring and reclosing.
4. Packaging machine according to claim 1, CHARACTERIZED BY THE FACT THAT a tear-off ribbon is applied longitudinally and continuously during the unrolling of the ribbon of flexible material.

5. Packaging machine according to claim 1, CHARACTERIZED BY THE FACT THAT, correspondingly to the shaping device, the forming tube is profiled for making the gusset on the sleeve of flexible material.

6. Packaging machine according to claim 1, CHARACTERIZED BY THE FACT THAT it is equipped for inserting continuously, in line with the longitudinal sealing, a zip fastener (21) that will constitute a device for the quick reclosing of the package.

Patentansprüche

1. Verpackungsmaschine mit einem Formrohr, um welches ein Band aus flexiblem Material gewickelt ist, und mit Einrichtungen, um das Band in Längsrichtung zu versiegeln, zu zwickeln und in Querrichtung zu versiegeln, um Stehbeutel herzustellen, **dadurch gekennzeichnet**, daß die Einrichtung zur Längsversiegelung (3,3') und die Zwickleinrichtung (14,14') so angeordnet sind, daß der Versiegelungsbetrieb in Längsrichtung und der Zwickelbetrieb auf zwei gegenüberliegenden lateralen Seiten der Manschette (7) erfolgen.
2. Verpackungsmaschine gemäß Anspruch 1, **dadurch gekennzeichnet**, daß die Versiegelung der Manschette in Längsrichtung durch Thermoversiegeln der zwei gegenüberliegenden Enden der Innenseite der Manschette miteinander erhalten wird.
3. Verpackungsmaschine gemäß Anspruch 1, **dadurch gekennzeichnet**, daß es in Reihe liegend mit der Versiegelung in Längsrichtung möglich ist, Formschnitte zu erhalten und Vorrichtungen zum Öffnen, Gießen und Wiederverschließen zu verwenden.
4. Verpackungsmaschine gemäß Anspruch 1, **dadurch gekennzeichnet**, daß ein Abreißband in Längsrichtung und kontinuierlich während des Entrollens des Bandes aus flexiblem Material verwendet wird.
5. Verpackungsmaschine gemäß Anspruch 1, **dadurch gekennzeichnet**, daß, entsprechend der Formungsvorrichtung, das Formungsrohr zur Bildung des Zwickels auf der Manschette aus flexiblem Material profiliert ist.
6. Verpackungsmaschine gemäß Anspruch 1, **dadurch gekennzeichnet**, daß sie zum kontinuierlichen Einfügen in Reihe liegend mit der Versiegelung in Längsrichtung, einem Zippverschluß (21) ausgerüstet ist, welcher eine Vorrichtung zum raschen Wiederverschließen der Verpackung bildet.

Revendications

1. Machine d'emballage comportant un tube de façonnage, enrobé d'une bande d'un matériau flexible, ayant des dispositifs pour vitrifier la bande au sens longitudinal, pour y placer un coin et pour la vitrifier au sens transversal, afin de fabriquer des poches verticales, **caractérisée par le fait** que le dispositif destiné à la vitrification au sens longitudinal (3,3') et le dispositif destiné au placement du coin (14,14') sont placés de telle manière à ce que le fonctionnement de vitrification au sens longitudinal et le fonctionnement de placement du coin soient effectués aux côtés latéraux opposés de la manchette (7).
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2. Machine d'emballage suivant revendication 1, **caractérisée par le fait** que la vitrification de la manchette au sens longitudinal sera effectuée par la vitrification thermique des deux embouts opposés du côté intérieur de la manchette.
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3. Machine d'emballage suivant revendication 1, **caractérisée par le fait** qu'il sera possible d'obtenir, en ligne avec la vitrification au sens longitudinal, des fentes de façonnage et d'utiliser des dispositifs pour ouvrir, verser et refermer.
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4. Machine d'emballage suivant revendication 1, **caractérisée par le fait** d'utiliser une bande déchirable au sens longitudinal et d'une manière continue pendant le déroulement de la bande de matériau flexible.
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5. Machine d'emballage suivant revendication 1, **caractérisée par le fait** que, de manière correspondante au dispositif de façonnage, le tube de façonnage sera profilé afin de former le coin sur la manchette de matériau flexible.
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6. Machine d'emballage suivant revendication 1, **caractérisée par le fait** que, afin de garantir la mise en place continue et en ligne avec la vitrification au sens longitudinal, elle sera équipée d'une fermeture zip (21), formant un dispositif pour refermer l'emballage rapidement.
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FIG. 1

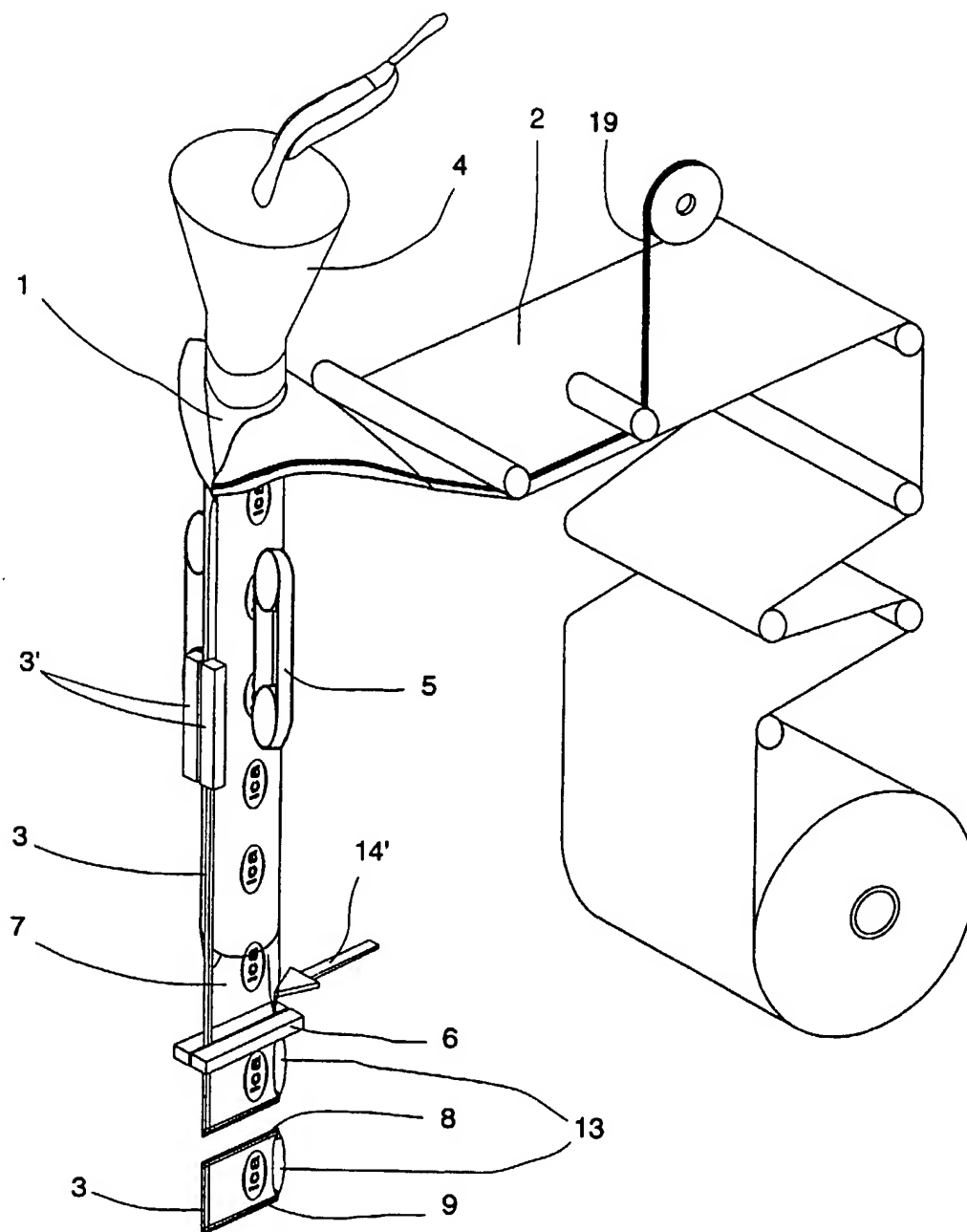


FIG. 2

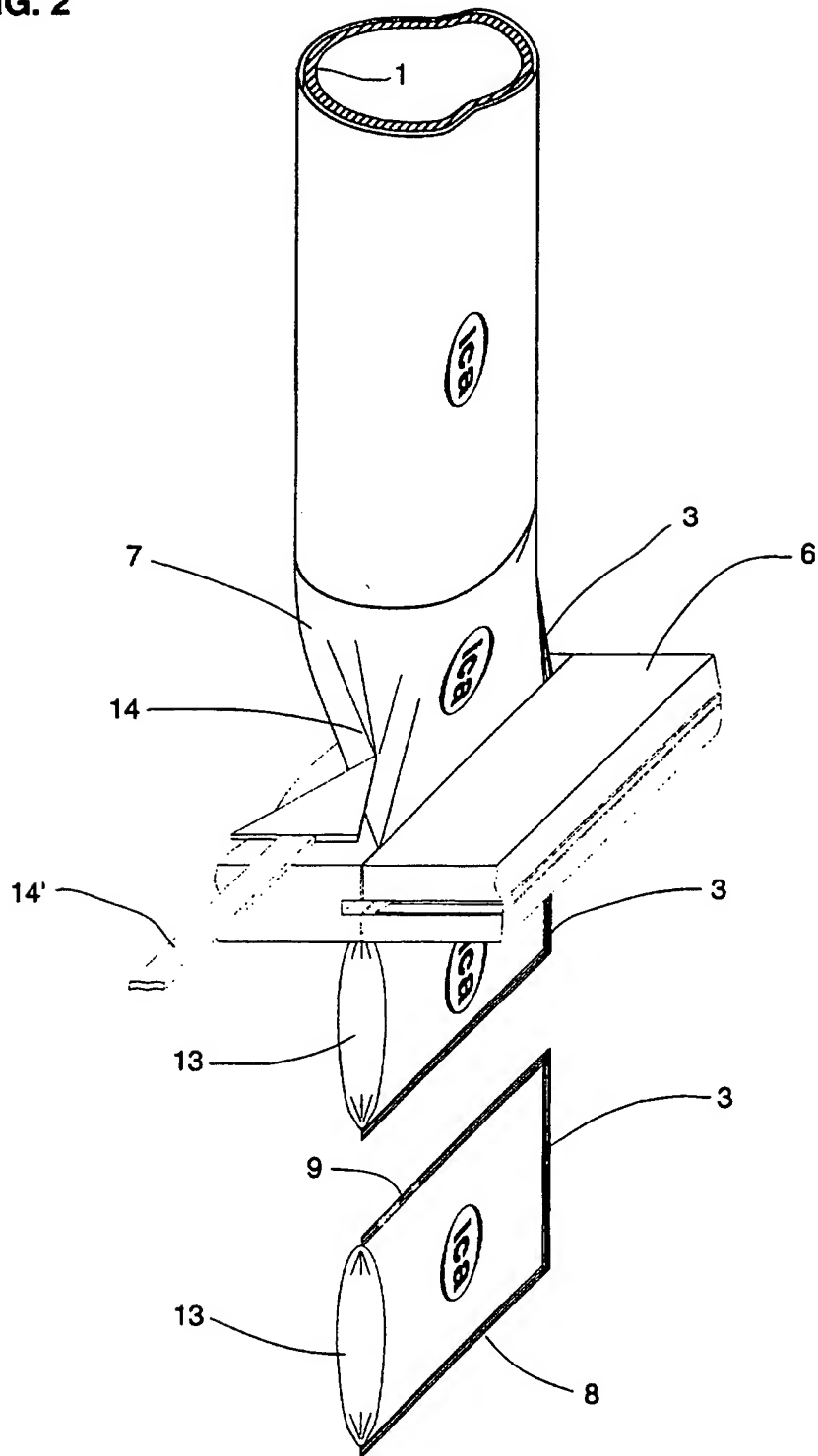


FIG. 3

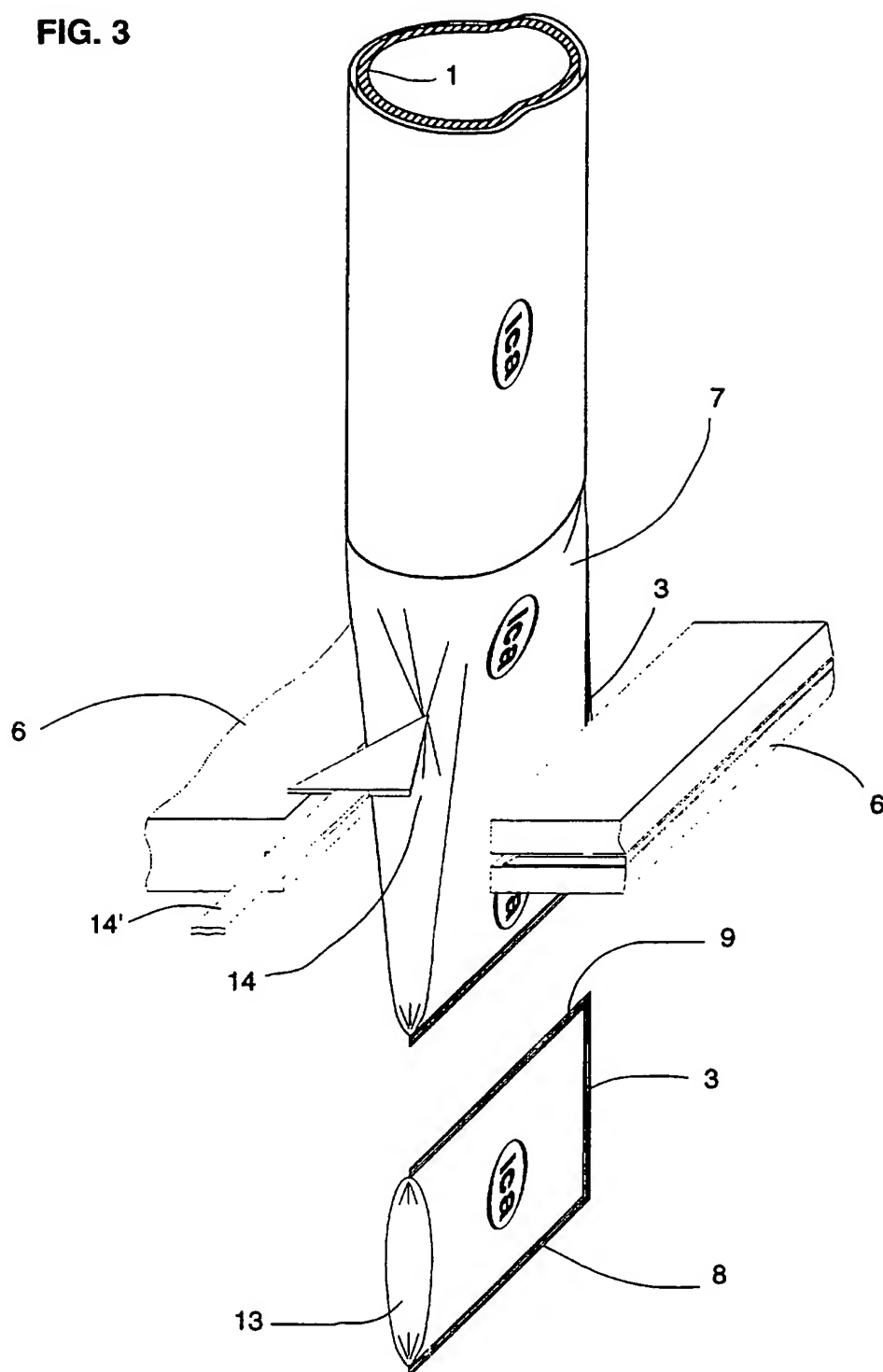


FIG. 4

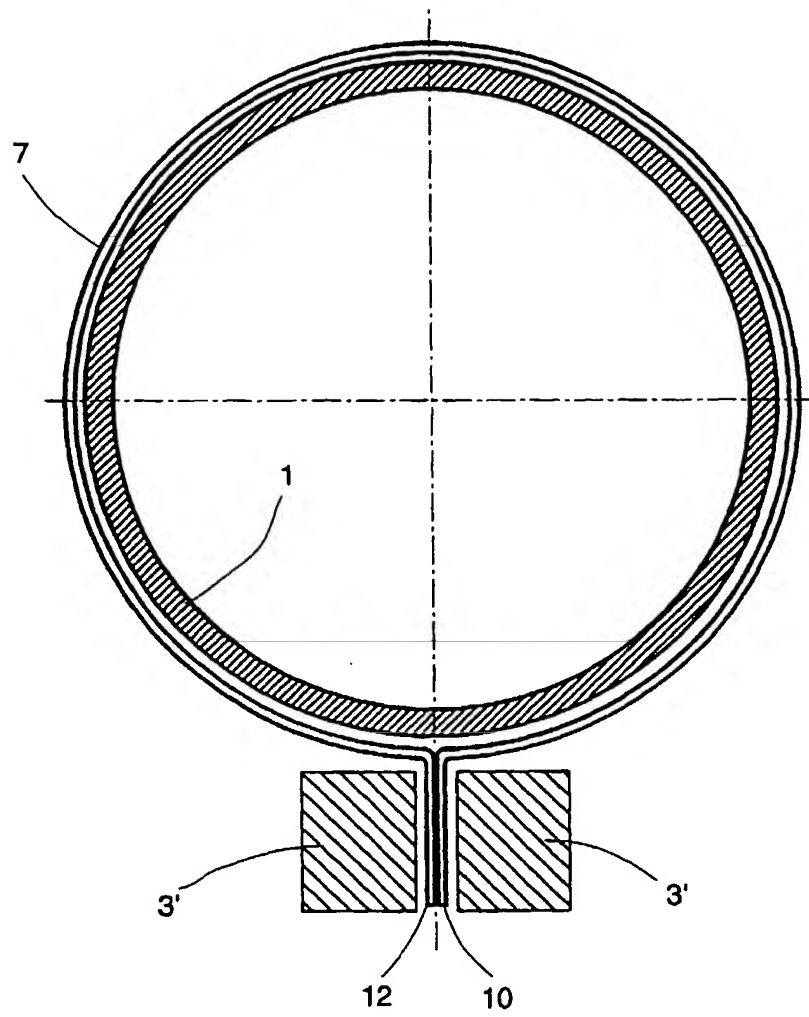


FIG. 5

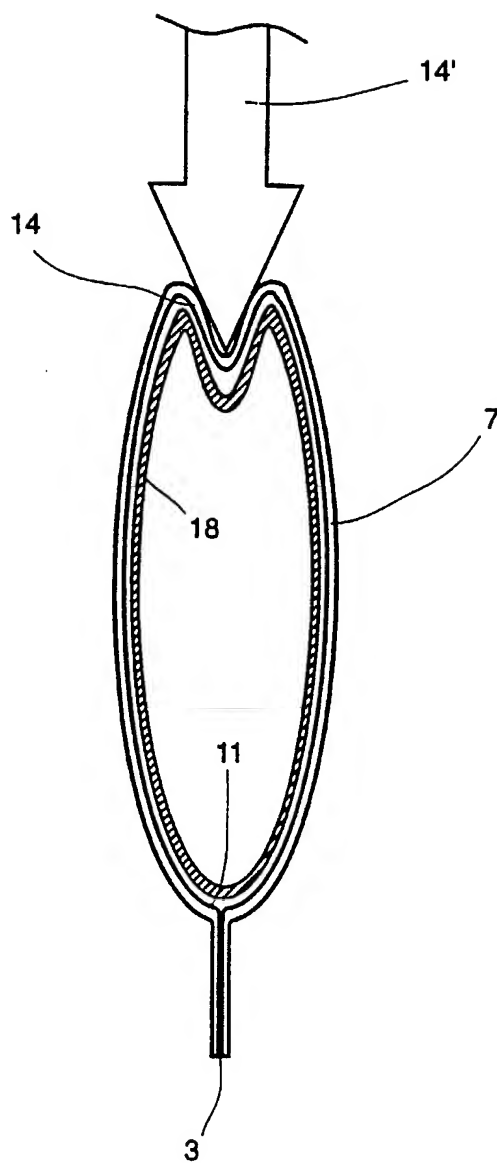
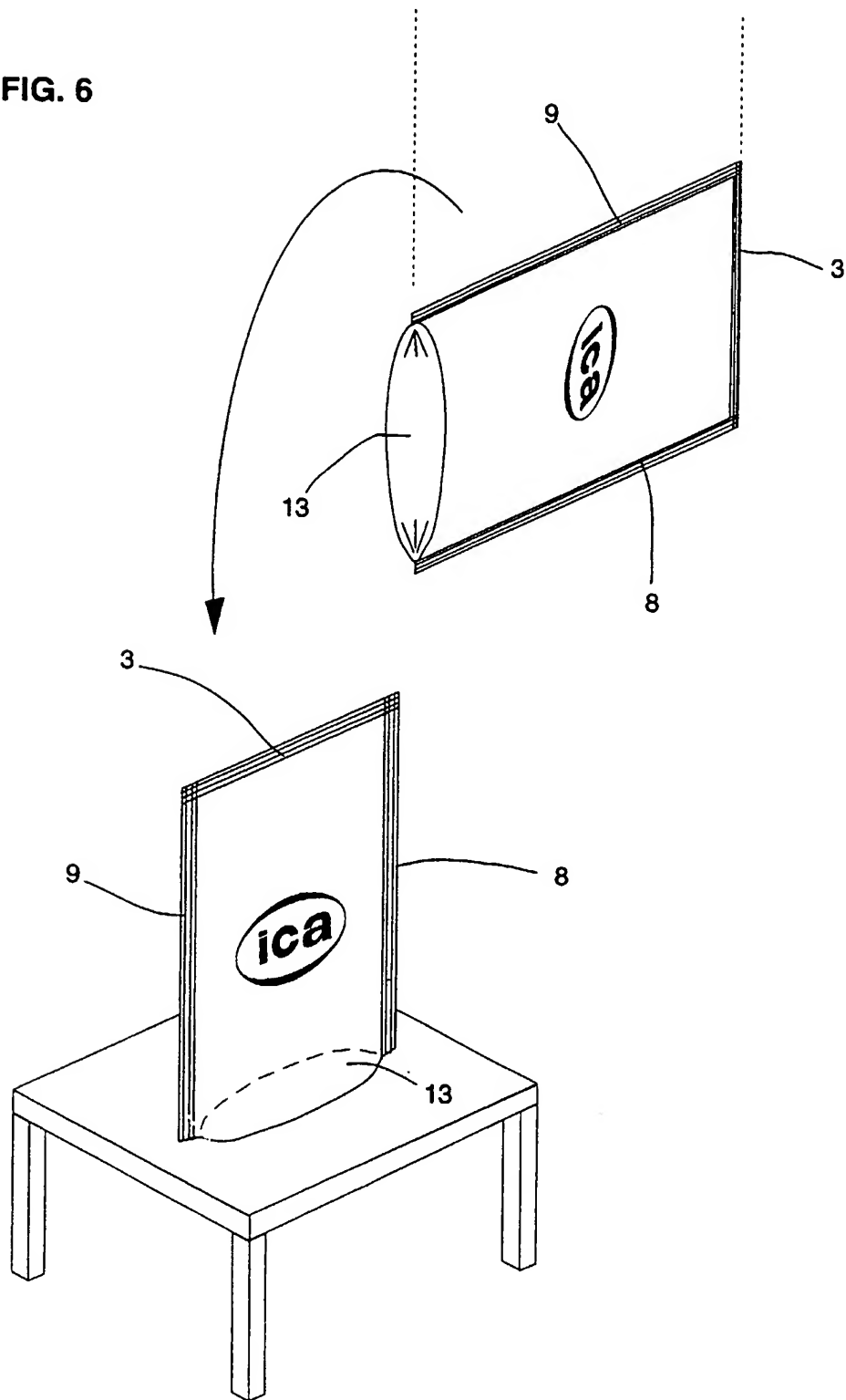


FIG. 6



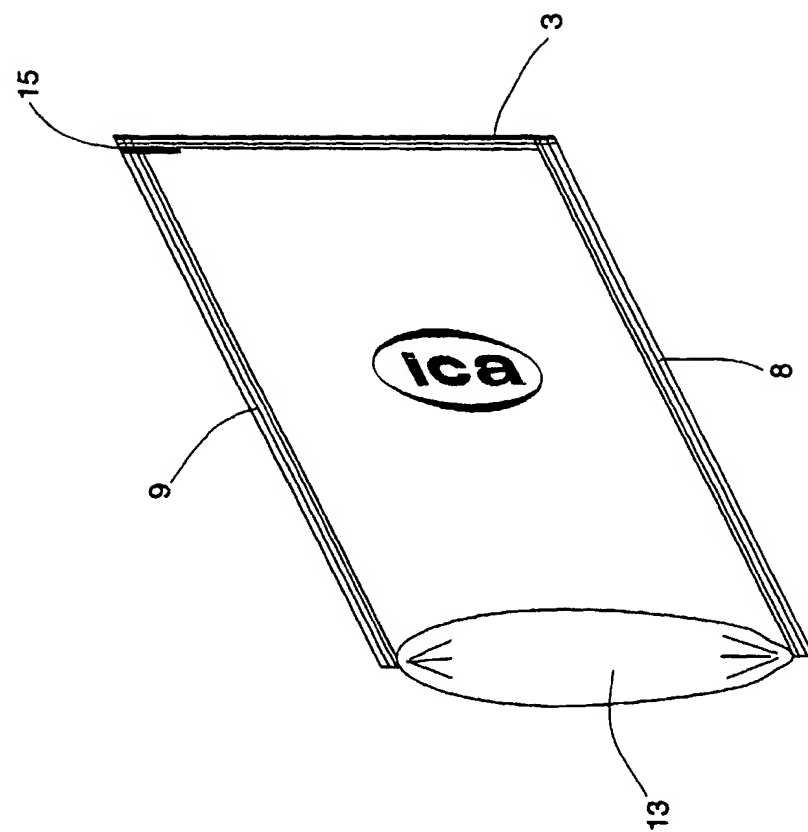


FIG. 7

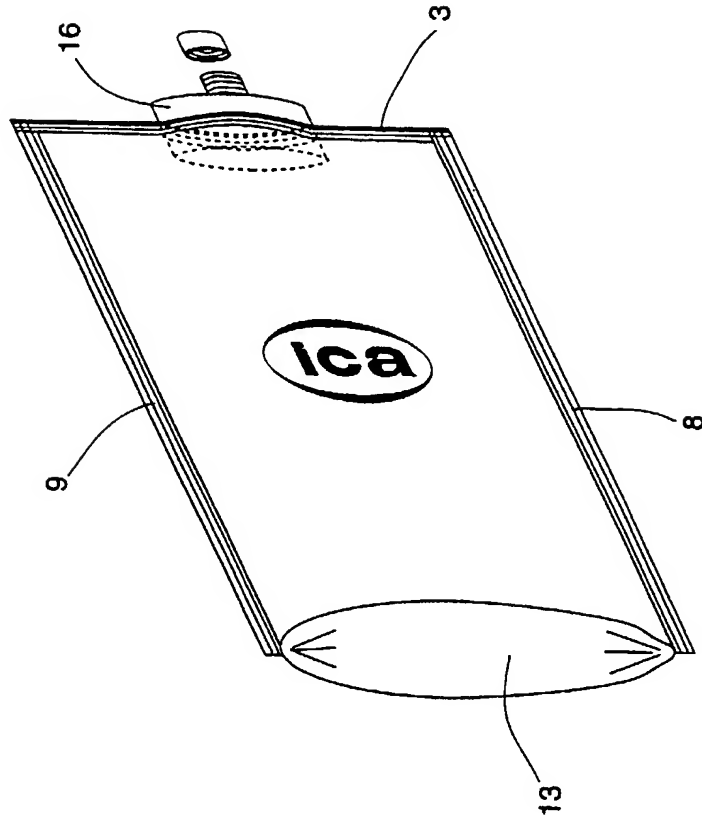


FIG. 8

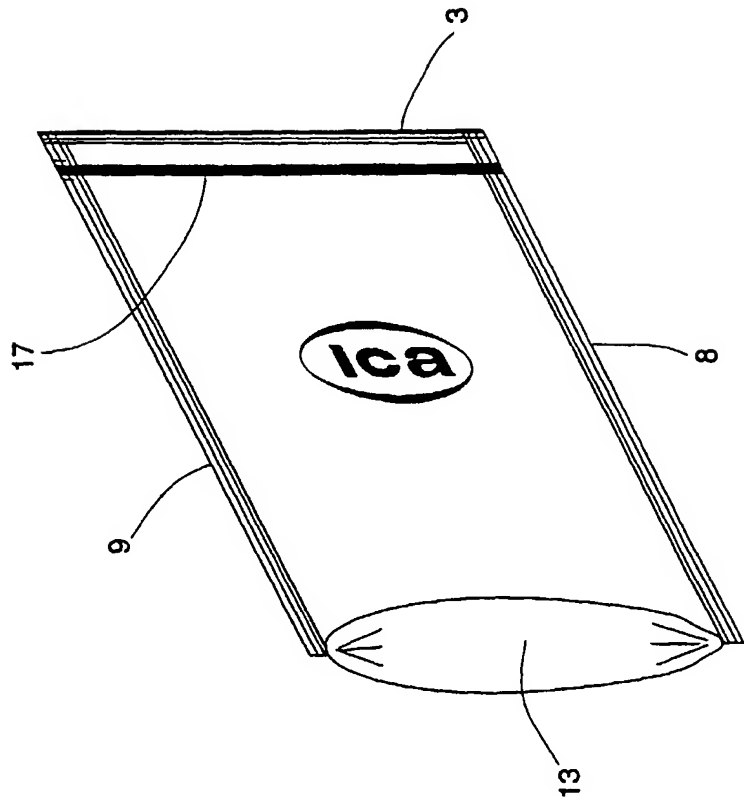


FIG. 9

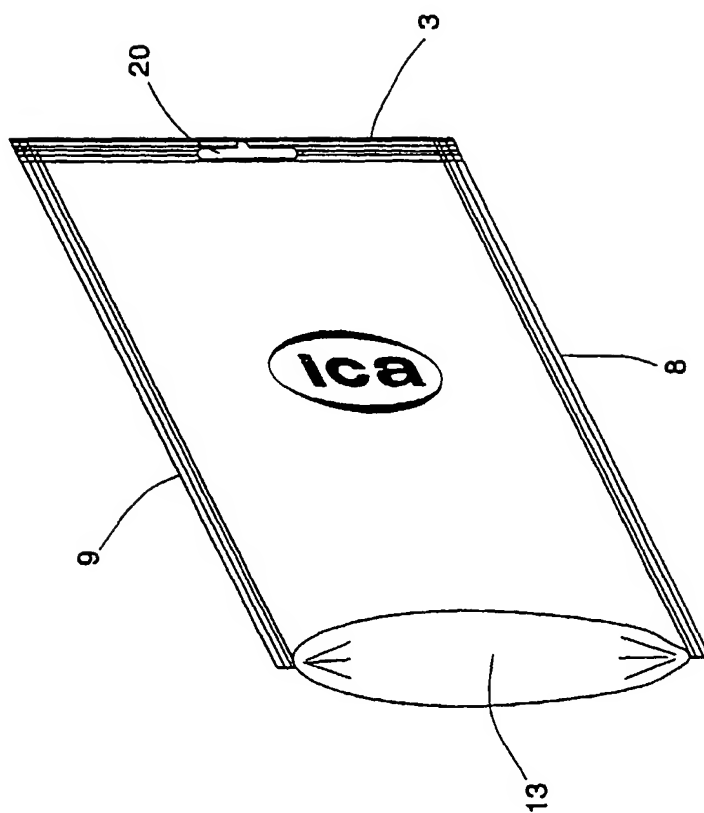


FIG. 10

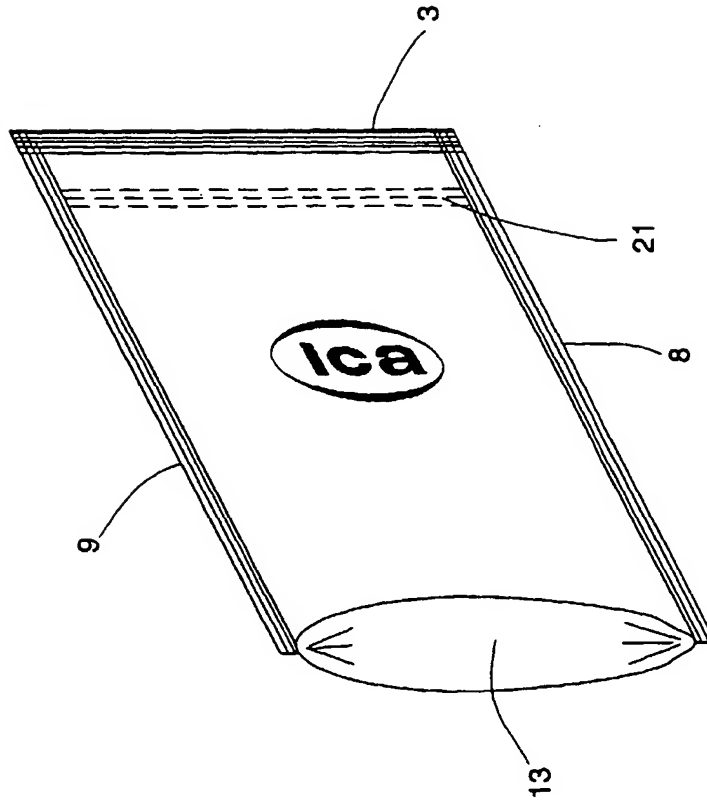


FIG. 11

FIG. 12

